

Chapter 3

The Case for Workforce Planning

Health care workforce modeling is directed toward informing policymakers of current or future imbalances between the supply and requirements of health professionals. Workforce planning allows for identification of the maldistribution of professionals by geographic region, specialty, and practice setting -- conditions that can adversely affect access to care, quality of care, or health care costs.¹

A necessary prerequisite to good workforce modeling and informed decision making is the collection and analysis of data on the health professions. The 1995 Pew Commission Task Force Report on health professions regulation specifically recommended that state health professions boards “should cooperate with other public and private organizations in collecting data on regulated health professions to support effective workforce planning.”² The report indicates that more than half of the states have established or are establishing health care data collection systems for planning purposes.

Because of the importance of the primary care workforce to the quality of and access to health care in Texas, the monitoring and forecasting of their supply and future requirements is a critical step in the development of informed state health care workforce policy. The basic policy questions concerning workforce planning can be summarized as follows:

Is the current (or future) supply of health care professionals in the state (or a geographical subdivision) adequate to meet the current (or future) health care needs of the population?

Does (will) the health workforce have the necessary skills and knowledge to provide quality, effective care?

Does (will) the workforce reflect and/or possess the competencies to meet the health care needs of a diverse population

Chapter one summarized the population trends driving the need for workforce planning in Texas. The most dramatic demographic changes that are projected to affect workforce demand are the population growth itself and the projected growth in the numbers of elderly, racial/ethnic population groups, and children in living in poverty. The expansion of managed care coverage could continue to affect workforce demand through the use of more nonphysician primary care providers.

The availability of timely, accurate, and accessible data on the state's health care providers is important for the purposes of tracking changes in the supply, distribution and composition of the state's health care workforce; for monitoring the effects of public policies on health care providers in the state; and for the planning and evaluation of educational programs. State legislators, state government policy makers and agencies, professional associations, state education programs, managed care organizations, and consumer and citizen advocacy groups may find this information useful.

A sampling of types of data used in workforce planning that can be derived from state and federal agencies, population data centers, from health professional licensure board application or renewal forms, and periodic surveys follows:

- **Health Professions**

Definitions concerning types of health professions, licensure and educational requirements, professional association information and training schools, and scope of practice laws.

- **Health Professionals** Licensure board rosters, summary counts, geographic distribution, staffing patterns and ratios, descriptive statistics (e.g., age, gender, race/ethnicity), salary and compensation, attrition rates due to retirements, career changes, and death and other causes.
- **Education** Training schools and location(s), post-graduation choices, specialty choice, and educational pipeline length.
- **Population** Population estimates and projections.
- **Demographics** Race/ethnicity, poverty rates, vital statistics.
- **Health Care Facilities** Hospitals, rural health clinics, community health centers, clinics, and others.
- **Health Care Delivery** Insurance coverages, Medicaid, Medicare, private, uninsured, fee-for-service and sliding-scale options, and health care expenditures/ revenues.

Two of the national standards used to indicate the adequacy of the current supply of health professionals and establish guidelines for determining future requirements are benchmarks and health professions shortage area designations.

Benchmarks

In 1996, the Council on Graduate Medical Education (COGME) reported on five methodologies for forecasting the requirements for primary care physicians.³ These methodologies are grouped into two general model types:

Adjusted Needs-Based Model: Defines the numbers of physicians needed to provide adequate care to entire populations based on the prevalence of disease and necessary health maintenance services.

1. Graduate Medical Education National Advisory Council (GMENAC)^{4,5}

Demand-Based Models: Assumptions are made about patterns of health delivery and people's ability to pay for services. These models are then used to project future demand based on current utilization rates, projected increases in population size, and specific assumptions about the delivery system.

2. Bureau of Primary Health Care Fee-for-Service Demographic Utilization Model⁶
3. Cooper Analysis Model⁷
4. Bureau of Primary Health Care Dominated System Requirements Scenario Model⁸
5. Weiner Managed Care Projections Model⁹

Using these five methodologies, a requirements benchmark of 59 to 77 full-time-equivalent (FTE) primary care physicians per 100,000 population was proposed as being adequate for meeting the health care needs of populations in the year 2000. A benchmark of 75 to 81 FTE primary care physicians per 100,000 population was proposed as meeting the needs in the year 2020. It is important to note that these benchmarks were developed with national level data and may not reflect Texas-specific conditions. Even though the primary care physician supply increased in Texas from 54 FTEs per 100,000 population in 1991 to 59 FTEs per 100,000 population in 1997, Texas has only approached the lower limit of the COGME benchmark for the year 2000.

Table: 3-1 Benchmarks for Estimating the Adequacy of Workforce Supply in Texas

Year	Population (POP)*	Primary Care Physicians (FTEs)**	Primary Care Physician FTE / 100,000 Population	Year 2000 Benchmark***
1991	17,349,000 ^e	9,353	54	59 - 77
1994	18,378,185 ^e	10,499	57	59 - 77
1998	19,649,746 ^p	11,576	59	59 - 77

• e = Estimated population; p = Projected population; Source: Texas State Population Estimates and Projections Program, Texas State Data Center, Texas A&M University; February 1998.

** Source: Texas State Board of Medical Examiners. Primary care physician full-time-equivalents (FTEs) are based on 1.0 FTE = 40 practice hours per week. Data on primary care physician FTEs were tabulated from licensure records.

*** Council on Graduate Medical Education, 8th Report of COGME, *Patient Care Physician Supply and Requirements: Testing COGME Recommendations*, DHHS, Public Health Service, Health Resources and Services Administration, July 1996 (HRSA-P-DM 95-3).

Federal Shortage Area Designations as Standards

The population-to-primary care physician ratio for Texas for 1991, 1994 and 1998 suggests an increase in the supply of primary care physicians. However, there is concern that the ratios used to designate health professional shortage areas (HPSAs) do not adequately reflect supply. With the steady increase in the number of whole counties being designated as HPSAs, shortages certainly exist, but primarily in some rural and inner-city areas. The number of whole or partial county HPSAs increased from 126 of 254 (50 percent) counties in 1994 to 136 (54 percent) in May 1998.

More than one-third (40 counties) of the Texas HPSA counties have fewer than seven residents per square mile, which is the federal definition of a “frontier area.” These sparsely populated areas pose additional challenges in recruiting and retaining health professionals. The results of physician surveys done in Texas as part of the evaluation of areas for shortage designation status indicate that access to health care providers is a major issue in many geographic areas. The access barriers most often reported are those pertaining to geographic isolation, linguistic isolation, practices closed to Medicaid and uninsured populations, and reduced practice hours of elderly providers.

Table: 3-2 Population-to-Primary care Physician Ratios in Texas, Selected Years, 1991-1998.

Year	Population (POP)*	Primary Care Physicians (FTEs)**	POP : PC Physician (FTE) Ratio	HPSA Threshold***
1991	17,349,000 ^e	9,353	1,855	≥ 3,500 : 1 Undersupply < 3,000 : 1 Adequate Supply
1994	18,378,185 ^e	10,499	1,750	
1998	19,649,746 ^p	11,576	1,697	

• e = Estimated population; p = Projected population; Source: Texas State Population Estimates and Projections Program, Texas State Data Center, Texas A&M University; February 1998.

** Texas State Board of Medical Examiners. Full-time-equivalents (FTEs) are based on 1 FTE = 40 practice hours per week.

*** U.S. DHHS, Public Health Service, Health Resources and Services Administration, July 1996 (HRSA-P-DM 95-3).

Some inner-city areas in large metropolitan areas such as El Paso, Houston, Lubbock, Dallas, Fort Worth and San Antonio are also federally recognized as experiencing a shortage of primary care

providers. In fact, 9 percent of all Texas HPSAs are located in high-poverty urban areas. Access to physicians in urban areas may be limited because of providers choosing not to participate in Medicaid, the lack of adequate public transportation, and extensive delays in obtaining appointments.

In early 1998, one-third (33 percent) of Texas counties were also federally recognized as experiencing a shortage of dental care providers. Nearly three-fourths of Texas' counties were designated as mental health provider shortage areas.

It is difficult to determine the most appropriate criteria for evaluating the over supply, adequacy or under supply of providers in Texas. Most workforce studies done in Texas over the past five years have reported the state to have less than an adequate supply of primary care physicians while numbers of most non-primary care specialties have typically been reported as adequate in supply or oversupplied.¹⁰

Workforce Forecasting and the Integrated Requirements Model

In the past, workforce planning has focused almost exclusively on physicians with little study of the other professions who make up the primary care workforce. Most recently, attention has been focused on primary care and primary care providers. Integration of the delivery of care across the entire spectrum of primary care providers is proposed as a method of meeting the requirements to access, quality and cost containment. Definitions of primary health care vary, but state and federal statutes usually include the specialties of family and general medical practice, general internal medicine, general pediatrics and obstetrics-gynecology. The April 1994 *Journal of General Internal Medicine* recommends including nurse practitioners, nurse midwives, and physician assistants with the physician specialties.¹¹ The Integrated Requirements Model, used in workforce planning, allows for the study of all of those providers.

The Integrated Requirements Model as a Workforce Planning Tool

The Integrated Requirements Model (IRM) is a Bureau of Health Professions, Health Resources and Services Administration (HRSA), U.S. Department of Health and Human Services (DHHS)

workforce modeling tool for estimating the requirements for the supply of various health professionals. The IRM combines the elements of both adjusted needs-based and demand-based models. It also expands its analysis of workforce. The initial version of the IRM looks not only at primary care physician need and demand, but also includes nonphysician primary care providers, including physician assistants, nurse practitioners and nurse midwives.

The IRM works by integrating groups of data that most affect the delivery of health care. By using multiple data types, the IRM overcomes the deficiencies of simple ratios and benchmarks by analyzing the effects of these multiple variables on requirements. The variables used by the IRM, and the associated values are as follows:

IRM Variables	Values
POPULATION	Age, gender, rural/urban
INSURANCE	Public, private and uninsured
STAFFING	Fee-for-Service, group/staff and independent practice associations/ network
PROVIDER TYPE	Primary care physician, physician assistant, nurse practitioner, and nurse midwife
YEAR	1995 through 2020

The IRM is programmed with federally acquired data on the above variables. More current and accurate state-level data can be substituted increasing the reliability of the results. The model also allows for the selection or comparison of six health care delivery insurance coverage scenarios based upon current or future conditions. A description of these six health care delivery scenarios follows:

- 1. Status Quo** - 1995 insurance distributions (number of people uninsured, covered by independent practice associations, HMOs, etc.) and 1995 staffing models (numbers of practitioners required to provide care to 100,000 people who are uninsured, under independent practice associations, HMO plans, etc.) are applied for each year between 1995 and 2020 to measure the effects of only the changing population demographics (age, gender, location) - all else held constant.

2. Baseline Insurance - In addition to shifts in population demographics, estimated shifts in insurance coverage are incorporated for every year between 1995 and 2020, making this scenario the “best estimate” baseline forecast. Staffing models are set to 1995 estimated values.

3. High Managed Care - Populations are shifted into HMO settings to a greater degree than in the baseline insurance projection scenario. This scenario is modeled for the year 2005 only. Staffing models are set to 1995 estimated values.

4. Universal Coverage - Building on the high managed care scenario, the uninsured population is then shifted into other insurance delivery modes (eliminating the uninsured), particularly into HMOs. It also assumes increases in preventive care in fee for service, thus increasing fee-for-service staffing levels. This scenario is modeled for year 2005 only.

5. Equal Access Under Universal Coverage - Building on the universal coverage scenario, staffing models are increased as required to provide parity (improved access) for underserved populations in their access to primary care. This scenario is modeled for the year 2005 only.

6. High Physician Assistant, Nurse Practitioner, Nurse Midwife Use - Insurance delivery modes are forecast the same as for the baseline insurance projection scenario. Staffing patterns are shifted by doubling the use of physician assistants, nurse practitioners, and nurse midwives (compared to the 1995 levels), assuming a “substitution factor” of 0.5 (i.e., nonphysician providers trade off for physicians at a rate of 0.5 physicians for one nonphysician).

The IRM is one tool that can be used for workforce analysis and forecasting. Effective use of the IRM requires accurate state-level data on population, insurance, staffing patterns, and health professions supply. In-depth interpretation of the data from the IRM should be augmented with other types of data including qualitative data.

The software modeling tool has been updated, version 2.0, and is currently being tested to allow for the estimation of supply requirements for the following 18 physician specialties (including the primary care specialties) and 12 nonphysician professions:

IRM Version 2.0 Physician Specialties:

Anesthesiology

Cardiovascular Diseases

Emergency Medicine

General Internal Medicine
 General Pediatrics
 General Surgery
 General/Family Medicine
 Obstetrics and Gynecology
 Ophthalmology
 Orthopedic Surgery
 Other Internal Medicine Subspecialties
 Other Specialties
 Other Surgical Specialties
 Otolaryngology
 Pathology
 Psychiatry
 Radiology
 Urology

IRM Version 2.0 Nonphysician
 Professionals:

Physician Assistant
 Nurse Practitioner
 Certified Nurse Anesthetist
 Certified Nurse Midwife
 Certified Nurse Specialist
 Chiropractor
 Optometrist
 Clinical Social Worker
 Psychologist
 Acupuncturist
 Naturopath
 Podiatrist

Workforce Planning Experiences

Other states have begun planning initiatives and can serve as examples for Texas. In Wisconsin a Primary Health Care Workforce Forum was appointed to “address issues related to the supply and demand for primary care providers in the state.”¹² That charge was later modified to include ways in which a rapidly changing market is forcing reconsideration of how a workforce is produced to meet demands and the special needs of underserved populations.

The members of the workforce forum concluded that health professions data are necessary on an annual and trend basis to effectively address ongoing policy issues and workforce plans.¹³ The forum also made the following recommendations to their Office of Health Care Information:

- **Prioritize data collection** - For some providers, annual data is required; for others biennial data; and for others, data collected at even longer intervals. Prioritize collection efforts and time lines toward those professionals who are of the most interest to integrated workforce planning, current legislative attention (e.g., scope of practice legislation, educational funding decisions, reimbursement policy, etc.) and current workforce planning efforts.
- **Determine how the data will be used** - Maintain the principle that it is not necessary to collect data unless there is some potential and/or anticipated use for it once it is collected.

- **Identify actual/potential “users” of the data** - Investigate how private sector agencies and organizations use the data and how often various data have been requested on demand.

The Bureau of Health Resources Development of the New York State Department of Health under contract to the Bureau of Health Professions (HRSA-DHHS), prepared a resource guide for state agencies titled “Data Systems to Support Health Personnel Planning and Policy Making.”¹⁴ This report was based on New York’s experience with workforce planning and information from a workshop that included representation from 14 states. The results of this study indicated that coordination and collaboration are of critical importance to any planning and policy making effort. The following operational strategies were recommended:

- Designate a lead agency to collect, compile, and maintain a minimum set of data and reference materials.
- Establish a Health Personnel Advisory Committee to facilitate the development of cooperative data collection programs and help coordinate data collection and analysis.
- Establish an Office of Health Professions that would include a data unit for primary data collection. This office would also be responsible for ongoing reporting and analysis and advanced modeling and forecasting.
- Develop an electronic data network (or website) for sharing health professions data.

Caveats for Using Workforce Projection Models

The overriding question is: “Will Texas have enough primary care providers in the future to satisfy the requirements of the health care system and the people it serves?” Workforce forecasting is a very complex and evolving field. There are several caveats that should be considered when looking at the results of any forecasting report or model.¹⁵

- The stated requirements are estimates, reference points, “educated guesses,” but not reality.
- Workforce forecasting allows for a “what if” approach to planning, for comparing “health care delivery as usual” with other possible scenarios.

- Workforce planning studies may challenge or support policies that either alter supply or modify projected requirements.
- Estimating workforce requirements is more appropriate at the state level, and possibly the county level, whereas investigating issues such as barriers to access is more appropriate at the community level.
- The use of both quantitative and qualitative data in workforce analyses yields better workforce plans than either type of data used alone.

Notes

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2. Finocchio, L.J., C.M. Dower, T. McMahon, C.M. Gragnola and the Taskforce on Health Care Workforce Regulation. *Reforming Health Care Workforce Regulation: Policy Considerations for the 21st Century*. San Francisco, CA: Pew Health Professions Commission, December 1995. p. 22.
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